

MONTANA FISH AND GAME DEPARTMENT
FISHERIES DIVISIONJOB COMPLETION REPORT
RESEARCH PROJECT SEGMENT

State of Montana Name Helicopter Mountain Lake Survey
Project No. F-32-R-3 Title Mountain Lake Survey - Bitterroot
Job No. I River Drainage
Period Covered: July 1, 1966 - June 30, 1967

ABSTRACT:

A pontoon equipped helicopter and two men were employed to survey 12 remote mountain lakes in the Bitterroot River Drainage in Western Montana. Experimental gill nets were used to measure fish populations. Seven of the 12 lakes surveyed contained fish. Physical features, fish population, age and growth and management recommendations are included in the report.

RECOMMENDATIONS:

Fish populations were found in seven of the 12 lakes surveyed (Table 1). Net catches from these seven lakes indicate suitable to dense populations of fish with comparatively slow growth. Fish in Lower Camas Lake are the most slow growing of those in any of the lakes surveyed. An over-abundance of fish is the reason for their stunted condition. According to planting records these seven lakes with fish populations have not been stocked for the last 13 years. Fish populations are maintaining themselves naturally and it is recommended that none of these lakes be stocked at this time. Recommendations for the remaining lakes are as follows:

Capri Lake. Physical features of this lake do not justify its consideration for management. However, since the history of this lake indicates it once contained cutthroat trout and provided good fishing, it is recommended an experimental plant of 500 westslope cutthroat trout be made as cheaply as possible (such as by a sportsmen's pack-in).

Dam Creek Lake is not recommended for management. A dam on the lake allows it to be nearly drained for irrigation. The lake was nearly drained at time of survey.

Kent Lake is suitable for fish, but is extremely remote. It is recommended this lake not be stocked until such time as increased fishing pressure warrants it. Westslope cutthroat trout should be the species stocked when appropriate.

Kneaves Lake is recommended for an experimental introductory plant of 700 westslope cutthroat trout because of the abundance of fish food present. Depth requirements may be somewhat marginal to provide a year-round fishery.

Pass Lake is not recommended for management due to its inadequate depth. This lake lies just upstream from Capri Lake previously mentioned.

Unnamed Lake (Middle Camas). This lake was observed only from the air in the course of surveying the other Camas Lakes. It appeared somewhat marginal in depth requirements but some surface fish activity was observed. No recommendation is made for management of this lake until further investigation can be made.

OBJECTIVES:

The objective of the job is to conduct fisheries surveys on mountain lakes in the Bitterroot River drainage inaccessible by road.

TECHNIQUES USED:

The lakes picked for survey were those lakes remaining in the Bitterroot River drainage which had not been initially surveyed, and which lay outside both the Selway-Bitterroot and Anaconda-Pintlar Wilderness areas. Forest Service regulations prohibited use of a helicopter in these areas in 1966. Consequently, surveys planned for lakes in the wilderness areas could not be undertaken this year.

A helicopter equipped with floats was used to transport fisheries survey equipment to the lakes. Survey data from each lake were entered on standard Montana Fish and Game lake survey forms. Sketch maps were constructed for each lake. Maps included information on shoal area, aquatic weed beds, tributary streams and approximate locations of experimental gill net sets. Lake depth information was obtained through the use of a transistorized portable sonar and plotted on the sketch map. Standard 125-foot long experimental monofilament gill nets were set overnight in assessing fish populations. Net set information and catch were recorded on gill net catch forms. Data from the survey were evaluated and used to formulate a management plan for the individual lakes.

FINDINGS:

Findings for the 12 mountain lakes surveyed in 1966 are summarized in Tables 1 through 3. In addition to the scheduled 12 lakes, a brief description of an unscheduled lake (Middle Camas Lake) is also included in this report.

Table 1. Data on mountain lakes surveyed in Bitterroot River drainage in 1966

| Name of Lake | Location | Depth in feet | Surface acreage | Gillnet hours | Number of fish caught | Species ^{1/} |
|---------------------------|--------------------------------|------------------|--------------------|------------------|-----------------------------|-----------------------|
| Bailey | T4N R23W Sec. 6 | 32 | 12 | 11.5 | 9 | Rb |
| Baker | T2N R21W Sec. 30, 31 | 52 | 8.8 | 9.5 | 8 | Yct |
| Lower Camas | T5N R21&22W S 25, 30 | 17 | 7.0 | 15 | 23 | Rb |
| Upper Camas | T5N R22W Sec. 25 | 54 | 14.8 | 15.5 | 2 | Yct x Rb |
| Capri | T1S R20W Sec. 20 | 3 | 4.1 | 0 | none | none |
| Dam Creek | T6N R18W Sec. 13, 24 | nearly dry | 9.8 | 0 | none | none |
| High | T6N R22W Sec. 28 | 85 | 39.5 | 13 | 4 | Rb |
| Kent | T4N R18W Sec. 25 | 35 | 7.5 | 48 | none | none |
| Kidney | T5N R22W Sec. 36 | 16 | 12.2 | 15 | 9 | Rb |
| Kneaves | T6N R18W Sec. 17 (N.E. Qtr) | 14 | 6.8 | 48 | none | none |
| Pass | T1S R20W Sec. 28 | ±5 est. | 3.8 | 0 | none | none |
| Tag Alder | T6N R21W Sec. 7 | 32 | 8.7 | 12 | 7 | Rb |
| Unnamed (Middle Camas) | T5N R22W Sec. 25 | ±8 est. | ±2 est. | 0 | 0 | 0 |

^{1/}Yct = Yellowstone cutthroat trout, Rb = Rainbow trout. It should be noted that a few fish exhibiting some degree of cutthroat x rainbow hybridization were found in nearly all the lakes containing fish.

Table 2. Age-growth of rainbow trout from mountain lake survey

| Lake | Average total length in inches at annulus | | | |
|-------------|---|----------|----------|----------|
| | I | II | III | IV |
| Bailey | 3.8 (9) ^{1/} | 7.6 (9) | 10.0 (7) | 11.3 (4) |
| Lower Camas | 2.7 (22) | 4.9 (22) | 6.5 (21) | 7.8 (5) |
| High | 2.9 (3) | 5.9 (3) | 8.9 (3) | 11.4 (1) |
| Kidney | 3.4 (9) | 6.4 (9) | 9.1 (6) | 10.4 (3) |
| Tag Alder | 2.9 (7) | 6.3 (7) | 8.2 (6) | 12.4 (1) |

^{1/}Number in parentheses denotes sample size

Table 3. Age-growth of Yellowstone cutthroat trout from mountain lake survey

| Lake | Average total length in inches at annulus | | | | | |
|---------------------------|---|---------|----------|----------|----------|----------|
| | I | II | III | IV | V | VI |
| Baker | 3.3 (7) ^{1/} | 6.1 (7) | 8.6 (4) | 11.1 (1) | | |
| Upper Camas ^{2/} | 4.0 (2) | 7.8 (1) | 11.4 (1) | 14.7 (1) | 17.1 (1) | 18.6 (1) |

^{1/}Number in parentheses denotes sample size

^{2/}Yellowstone cutthroat x rainbow hybrids

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